

What is claimed is:

- 1    1.     An apparatus comprising:  
2           a fuel cell to receive a fuel;  
3           an integrated circuit; and  
4           a cooling system to cool the integrated circuit, wherein the cooling system  
5 includes a fluid path for the fuel.
- 1    2.     The apparatus of claim 1 further comprising:  
2           a second integrated circuit; and  
3           a second cooling system to cool the second integrated circuit wherein the  
4 second cooling system includes a fluid cooling medium.
- 1    3.     The apparatus of claim 2 wherein the fuel cell includes at least one electrode  
2 through which the fluid cooling medium can pass.
- 1    4.     The apparatus of claim 3 further comprising a pump to pump the fluid  
2 cooling medium.
- 1    5.     The apparatus of claim 3 wherein the second cooling system comprises a  
2 heat pipe.
- 1    6.     The apparatus of claim 2 wherein the second cooling system is adapted to  
2 cool the fuel cell.
- 1    7.     The apparatus of claim 6 further comprising at least one temperature sensor.
- 1    8.     The apparatus of claim 7 wherein the temperature sensor is configured to  
2 sense a temperature of the fuel cell.

- 1 9. The apparatus of claim 7 wherein the temperature sensor is configured to  
2 sense a temperature of the second integrated circuit.
- 1 10. The apparatus of claim 7 further comprising a control system adapted to  
2 modify a fluid flow in response to a temperature sensed by the temperature sensor.
- 1 11. The apparatus of claim 7 further comprising a control system adapted to  
2 modify a power output level of the fuel cell in response to a temperature sensed by  
3 the temperature sensor.
- 1 12. The apparatus of claim 2 wherein the integrated circuit comprises a  
2 processor.
- 1 13. The apparatus of claim 2 wherein the fluid cooling medium comprises a  
2 liquid metal.
- 1 14. The apparatus of claim 2 wherein the second cooling system is adapted to  
2 have the fluid medium pass through a phase change.
- 1 15. An apparatus comprising:  
2 a fuel cell having an electrode with fluid passages through which a fluid  
3 cooling medium can pass; and  
4 a heat generating device to preheat fuel for the fuel cell.
- 1 16. The apparatus of claim 15 further comprising a pump to pump the fluid  
2 cooling medium through the fluid passages.
- 1 17. The apparatus of claim 15 wherein the heat generating device comprises an  
2 integrated circuit.

1 18. The apparatus of claim 17 wherein the integrated circuit comprises a  
2 graphics circuit.

1 19. The apparatus of claim 17 wherein the integrated circuit comprises a  
2 processor.

1 20. The apparatus of claim 17 further comprising a cooling system coupled to  
2 the fluid passages.

1 21. The apparatus of claim 20 wherein the fluid cooling medium comprises a  
2 liquid metal.

1 22. The apparatus of claim 20 further comprising a second integrated circuit  
2 adapted to be cooled by the cooling system.

1 23. The apparatus of claim 20 further comprising a temperature sensor.

1 24. The apparatus of claim 23 further comprising a control system to increase  
2 the fuel cell output when a temperature sensed by the temperature sensor drops.

1 25. A method comprising:  
2 preheating a fuel for a fuel cell in a first cooling system; and  
3 cooling the fuel cell in a second cooling system.

1 26. The method of claim 25 further comprising:  
2 sensing a temperature within the second cooling system; and  
3 modifying a power output of the fuel cell.

1 27. The method of claim 26 wherein sensing a temperature comprises sensing a  
2 temperature of the fuel cell.

1 28. The method of claim 26 wherein sensing a temperature comprises sensing a  
2 temperature of a device cooled by the second cooling system.

1 29. An electronic system comprising:  
2 a fuel cell to receive a fuel;  
3 an integrated circuit;  
4 a cooling system to cool the integrated circuit, wherein the cooling system  
5 includes a fluid path for the fuel; and  
6 an antenna coupled to the integrated circuit.

1 30. The electronic system of claim 29 wherein the electronic system comprises a  
2 computer.

1 31. The electronic system of claim 30 wherein the fuel cell is external to the  
2 computer.

1 32. The electronic system of claim 30 wherein the fuel cell is in a swappable bay  
2 of the computer.

1 33. The electronic system of claim 30 wherein the fuel cell is semi-permanently  
2 affixed within the computer.